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JUL 10 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Bert W. Elliot)	Group Art Unit 3635
)	
Serial No. 09/515,928)	Examiner: Robert Canfield
)	
Filed: February 29, 2000)	Confirmation No. 1357
)	
For: SHINGLE FOR OPTICALLY SIMULATING A SLATE ROOF)	Attorney Docket 24673A
)	

DECLARATION OF DONN R. VERMILION

Commissioner For Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

I, Donn R. Vermilion, declare and state as follows:

1. I am a Senior Research Associate employed by Owens Corning at the Owens Corning Technical Center in Granville, Ohio. I joined Owens Corning in 1973 after obtaining my Bachelor of Science degree in chemistry from the Ohio State University in 1971. I have worked in various research capacities for Owens Corning for the last 34 years. Most of my work at Owens Corning has been in the area of roofing and asphalt products. I have been named as an inventor on at least 29 issued U.S. patents.

2. As part of my work at Owens Corning, I have been named as a project leader on a number of research projects. One of those projects on which I was named as the project leader was called the Mira Vista project, which was active in the 1998-1999 time frame. One objective of the Mira Vista project was to develop plastic resin tiles that simulated natural slate roofs when installed on a roof deck. The reason that

Owens Corning wanted to make such products is that natural slate roofs are considered in the marketplace to be a premium roof covering. As project leader on the Mira Vista project, I studied the appearance and construction of natural slate roofs, and evaluated various designs of plastic resin tiles that would mimic the aesthetically pleasing aspects of natural slate roofs.

3. Natural slate tiles have long been used as a roof covering. Natural slate is a durable material and is considered to provide an aesthetically pleasing look or appearance to a roof. Natural slate tiles are applied to a roof deck or roof framework one tile at a time in a labor intensive process, but the overall appearance of a natural slate roof is deemed by the marketplace to be worth a premium price. For example, the installed cost of a natural slate roof covering is approximately 4 times the installed cost of an asphalt shingle roof covering, and yet natural slate roofs are very popular.

4. One of the features of providing natural slate roofs is that different sources of natural slate are available in different regions of the country. Shipping costs for natural slate tiles are high because of the weight of the tiles, and therefore typically slate is obtained from local or regional sources. Different sources of natural slate have different colors. Commonly available natural slate colors are gray or green, and different natural slate colors such as red, purple or different shades of gray or green are more scarce. The realities of free market supply and demand commonly result in one slate color being less expensive than other slate colors. In any particular region the commonly available natural slate colors are less costly than the cost of the relatively scarce colors for that region. Accordingly, slate roofs typically have a predominant color, which is the least expensive color regionally available, with one or more additional colors interspersed to add variety and character to the roof covering.

5. Having a predominant color means that a natural slate roof has one color that occurs more frequently than the other colors in the roof. It also means that the more frequent color occurs sufficiently to be a prevalent color, and that the remaining colors are present for accent or variety. In fact, the prevalent color occurs with such frequency that the roof covering sometimes has an overall effect of just one color accented by the remaining colors.

6. In my experience, a natural slate roof typically has the appearance of at least 60% of the predominant color, with the remainder of the tiles being of an accent color. Commonly, the area of predominant color of a natural slate roof is substantially higher than 60%, such as, for example 70-80%.

7. In view of the above, the term "natural slate roof" has a meaning in the roofing industry of a roof covering having the appearance of exposed portions of individual tiles partially overlaid by tiles of succeeding courses of individual tiles. Each of the exposed portions of a tile has a single color, with at least about 60% of the tiles being of a predominant color, and typically significantly more than 60% of the tiles being of a predominant color. The remainder of the tiles of the natural slate roof are of one or more accent colors.

8. I have read the above-identified patent application (serial number 09/515,928), entitled "SHINGLE FOR OPTICALLY SIMULATING A SLATE ROOF", and have reviewed the drawings. I note that the independent claims define a roof covering that has an appearance that simulates a natural slate roof.

9. I have read U.S. Patent No. 1,843,370 to Overbury, which discloses a process of refurbishing asphalt shingles. Overbury discloses that initially, the original shingles are multi-tabbed shingles, which are described, at page 1, lines 23-27 of the specification, as having a surface layer of comminuted material, such as crushed slate. This surfacing material would give the original roof an appearance of a single color, i.e., the color of the slate material used for the crushed slate layer. Since the color would be uniform, the original roof covering using crushed slate would not have the appearance of a natural slate roof..

10. I also note that Overbury discloses that the original shingles can be refurbished by applying an additional layer of surfacing material, and that this layer of surfacing material can be applied in different colors. The additional surfacing material can be made of a number of materials, including crushed slate. Overbury discloses that the colors of the additional layer of surfacing material can be arranged so that each color is confined to a portion of the strip shingle which corresponds to one tab of

the shingle. Further, the color of each tab is different from that of another tab. This is disclosed at page 2, lines 20-31, and in the drawings.

11. At page 2, lines 90-96 of Overbury, the specification states that each shingle "will have a solid color different from other tabs in the strip, although if desired two or more adjacent tabs may now and then be given the same color." [Emphasis added].

12. It is my opinion that the level of ordinary skill in the field of shingle design is that of a product or process engineer with at least a bachelor's degree in engineering or science, and with at least five years of shingle process or product design experience. I also believe that the term "now and then" would be interpreted by a person of ordinary skill in the art to mean only occasionally, and would be interpreted not to mean that one color would be a predominant color.

13. I note that the strip shingle shown in Overbury's Figs. 6 and 8 has five tabs, each of the tabs having a different color, i.e., five different colors, based on the shading lines. One of the tabs, the leftmost tab, is wider than the other tabs. It is my opinion that a person of ordinary skill in the art would appreciate that by virtue of the wider tab of the one color, more of that color would be exposed on the roof. However, it is also my opinion that the width of the leftmost tab is not so great that a person of ordinary skill in the art would expect the overall roof appearance to be that of a natural slate roof since there would not be a predominant color to the extent expected in a natural slate roof.

14. Based my visual inspection of the shingles shown in Figs. 6 and 8, focusing on the width of the different tabs of the shingle, I estimate that the color of the leftmost tab of Fig. 6 would appear to cover about one-third of the exposed area of the shingles when applied on a roof as a roof covering. This estimate is based on an analysis of a print of Fig. 8, a copy of which is attached as Exhibit A to this Declaration. The print is blown up and stretched in order to facilitate measurement. The added markings on the print of Exhibit A enable the tab length of a series of 5 tabs, marked as tabs A-E, to be measured. The markings added to the print indicate that the total length of tabs A-E is approximately 3.15 inches, the total length of tabs

A-E and adjacent cutouts is approximately 3.7 inches, and the width of tab E is approximately 1.1 inches. Without considering the cutouts, the ratio of the length of tab E to the length of all 5 tabs is approximately 0.32. When considering the cutouts, the ratio of the length of tab E to the length of all 5 tabs plus all cutouts is 0.30. Presuming that the width of the tabs is proportional to the area of the tabs exposed, the exposed area of the largest tab would be about one-third of the exposed area of the entire roof.

15. A person skilled in the art would not consider this relatively small percentage of the one color to be a predominant color. Consequently, a person skilled in the art would not consider the Overbury shingle shown in Figs. 6 and 8, or described in the patent to suggest a natural slate roof.

16. All statements made herein of my own knowledge are true, and all statements made on information and beliefs are believed to be true.

17. These statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issuing therefrom.



Donn R. Vermilion

Date: July 9, 2007

Exhibit A

Print of Figs. 6 and 8 of U.S. Patent No. 1,843,370

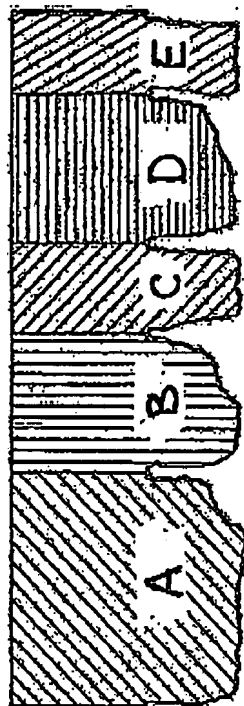
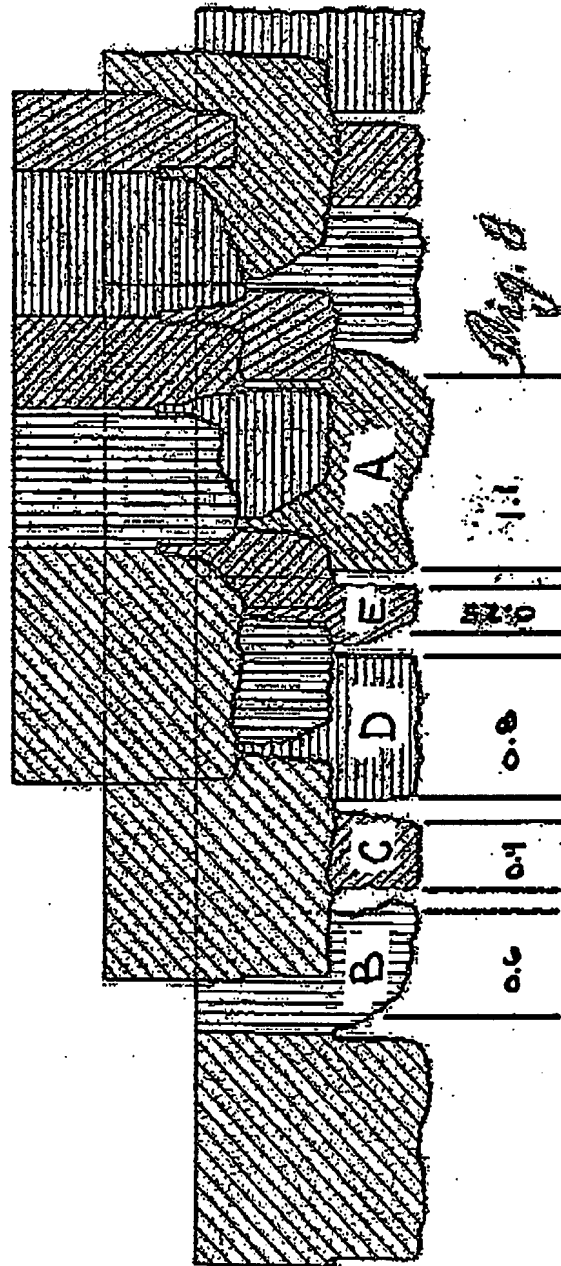


Fig. 6

Calculations

$$\text{All tabs: } \frac{1.1}{3.15} = 0.32$$

$$\text{Tabs and cutouts: } \frac{1.1}{3.7} = 0.30$$



Feb. 2, 1932.

F. C. OVERBURY

1,843,370

IRREGULAR STRIP SHINGLE

Filed June 1, 1926

2 Sheets-Sheet 2

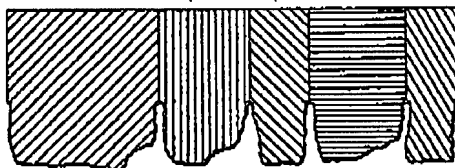


Fig. 6

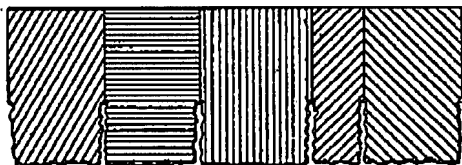


Fig. 7

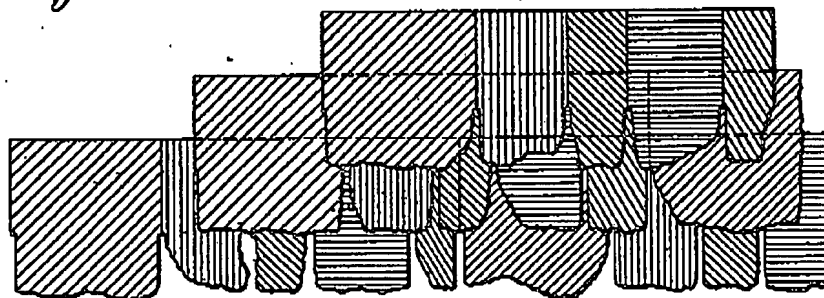


Fig. 8

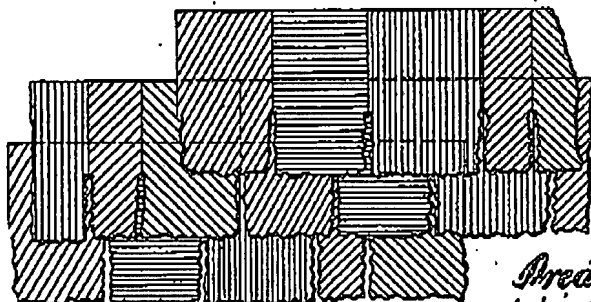


Fig. 9

Inventor:

Frederick C. Overbury
by [Signature] Esq.
Attys.

Patented Feb. 2, 1932

1,843,370

UNITED STATES PATENT OFFICE

FREDERICK C. OVERBURY, OF HILLSDALE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PATENT AND LICENSING CORPORATION, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

IRREGULAR STRIP SHINGLE

Application filed June 1, 1928. Serial No. 112,814.

This invention relates to fabricated roofing of a type which is commonly made of a base of felted fibrous sheet material saturated with a waterproofing asphaltic compound and coated with layers of impervious material, such as "blown" or high melting-point asphalt and granular material.

In the manufacture of roofing elements of this type, material for the base is usually made from a pulp of rag, asbestos or other suitable fibers, and formed into sheets on a paper-making machine. This felted fibrous sheet material is preferably saturated with an asphaltic compound, the saturant either being mixed with the pulp in the form of an emulsion, or applied in liquid form to the dried sheet. The saturated sheet is then coated on one or both sides with a suitable coating compound, such as blown asphalt which, by reason of its tough rubbery consistency at ordinary atmospheric temperatures and its relatively high melting point, is generally used for this purpose. To protect the asphalt from the deteriorating action of the weather, it may be surfaced with suitable granular or comminuted material, such as crushed slate, tile, brick, or the like. Pulverulent material, such as powdered mica or chalk dust, may be substituted for the granular material on areas which are not exposed to the weather when the element is laid, to prevent adjacent elements from sticking together when packaged for shipment. The roofing elements are then cut or otherwise separated from the sheet, being given any desired size or shape. Such elements may be individual shingles or may be strip shingles, so called, with a plurality of tabs simulating individual shingles. This method of making roofing elements is capable of considerable variation both in sequence of the various steps and in the manner of carrying out each step. By whatever process the elements are made, there is bound to be a certain percentage of "seconds" or elements with imperfections of one kind or another which prevent their being sold in the form and grade intended. The imperfections in such elements are often slight, and of a nature which in no way detracts from the protective qualities of the element. By my

invention, I am able to reclaim and utilize a large proportion of "seconds" and thus prevent a large waste of costly material. This may be done by cutting or tearing material from the butt edges or portions of the elements so as to remove the imperfect parts and at the same time produce an element which will have irregularities of shape which offer great possibilities for artistic effects, avoiding the monotonous regularity which characterizes elements of uniform shape when laid on a roof.

After cutting or tearing the elements to irregular shapes, I may apply an additional coating of blown asphalt or the like to the whole surface or the exposed portion thereof, this coat also covering and sealing the cut edges. A surfacing of granular material may then be applied to the coat, this granular material being of a number of colors if desired. Where a plurality of colors are used, it is preferred that each color occupy a definite area substantially coextensive with that portion of a shingle strip which corresponds to an individual shingle. The additional layer of asphalt and grit also covers surface imperfections and adds materially to the thickness of the element, thus giving it a more substantial appearance.

My invention is not to be limited to the reclamation of factory seconds, as I may start with the coated and slated sheet material, cut or otherwise separate elements therefrom with irregularly shaped tabs, then apply an additional coating, sealing the cut edges and surface the coating with grit which may be of a variety of colors arranged as hereinbefore described.

Further advantageous features will be apparent from the disclosure in the description which follows, and from the drawings, of which,—

Figures 1 and 2 illustrate strip shingles having tabs of different geometric shapes and different colors.

Figure 3 indicates the effect produced by a number of such strip shingles laid in overlapping courses.

Figures 4 and 5 show in cross section two examples of the structures which may be

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built up in making strip shingles according to my invention.

Figures 6 and 7 illustrate different forms of strip shingles with tabs of various irregular shapes and different colors.

Figures 8 and 9 indicate the appearance of roofs laid with elements such as are illustrated respectively in Figures 6 and 7.

Referring to the drawings in detail, Figures 1 and 2 illustrate forms of roofing elements which have a plurality of tabs of different shapes. The extensive cut-away portions make this type of strip shingle particularly valuable in the reclamation of factory seconds which may have slight imperfections such as cuts or tears in one or more of the tabs. The forms illustrated in these figures are illustrative of a large variety of combinations of shapes which can be made. In addition to various shapes for the several tabs, it is preferred to have a variety of colors, each color being confined to a portion of the strip shingle which corresponds to one tab. Thus in Figure 1, for example, a three-tab strip shingle is shown, one of the tabs 10 being pointed, another tab 11 having a semi-hexagonal shape, while the third tab 12 is semi-circular. These different tabs are surfaced with solid colors, the color of each tab being different from that of the adjacent tab. In reclaiming defective strip shingles, the defective portions may be cut out in any convenient manner so as to form tabs of desired shape, the shape being governed somewhat by the nature and extent of the defects. After the strip shingle has been cut to shape, it may be coated with suitable impervious material, such for example as blown asphalt or the like, this coating being applied over all the surfaces and edges of the element, or merely to the exposed surface and edges, or to any extent between these. While the coating is still hot and sticky, granular material of any desired kind, such as crushed slate, brick, tile, or other equivalent, may be applied, grit of different colors being used for the several tabs of the element. Figure 4 shows in cross section a refinished element comprising a fibrous core 13 of felted sheet material, preferably saturated with liquefied or emulsified asphalt. On either side of this felt sheet is a coating 14 of blown asphalt or the like, surfaced with grit 15 on both sides of the element. The refinishing coat 16 of blown asphalt covers the grit layers 15 and extends in a continuous film around the butt end of the element as at 17. This outer coating of asphalt is overlaid with a second layer 18 of grit which may be applied to the upper and lower surfaces of the element as shown, or simply to the upper surface and the edge. Figure 5 is a section similar to Figure 4 showing a refinished element which originally was coated on both sides with layers 16 of blown

asphalt, but was finished with grit 18 on one side only. As previously described, a second coating of blown asphalt may be applied over the exposed surface and edges, or over the entire surface of the element, the recoated portions being re-surfaced with an additional layer 18, different colors of grit being preferably used for the several tabs. It will be apparent that many variations are possible in the extent of the portions coated and surfaced with grit in the refinishing process, the examples given in Figures 4 and 5 being by way of illustration only.

Figures 6 and 7 illustrate two varieties of strip shingles which are made up to give an appearance of irregularity and roughness to the roof as a whole. The tabs on the element shown in Figure 6, for example, may be shaped by cutting or tearing so as to resemble the projecting ends of rough slabs of stone or tile. In the form illustrated in Figure 7, the usual straight line edges of the tabs are relieved by wavy or jagged lines, the regularity of effect being further eliminated by the difference in width of the tabs. In these forms also it is preferable to apply the final surfacing layer of grit so that each tab will have a solid color different from other tabs in the strip, although if desired two or more adjacent tabs may now and then be given the same color. When strip shingles are made up with tabs of unequal width as in Figures 6 and 7, it is preferred to regulate the widths of the tabs so that they will be limited to either thirds or fifths of the standard width. When laying such elements on a roof, the elements in successive courses should be offset laterally a distance equal to half the standard width of a tab. This will avoid the possibility of a slot between tabs of one element coinciding with the line of abutment between adjacent elements in the course below, a situation which would reduce the protection afforded by the roofing elements and would be liable to cause a leak at that point. By regulating the widths of the tabs as stated, such a contingency is avoided and all abutting lines of adjacent elements are covered by some portion of a tab, thus insuring complete protection.

It is to be understood that the invention is not to be limited by the embodiments shown and described herein, but is subject to such changes and modifications as fall within the scope of the appended claims.

I claim:

1. The process of refinishing strip shingles having shingle-simulating tabs, which comprises tearing away portions of said tabs to alter the original shapes thereof and to produce irregularly shaped edges, coating the exposed surfaces of the element with an impervious compound, and surfacing the coated areas with comminuted material.

2. The process of refinishing imperfect

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strip shingles having shingle-simulating tabs, which comprises re-shaping said tabs into a variety of shapes by the removal of portions thereof, coating the exposed surfaces and edges of the element with an impervious compound, and applying granular material of different colors to the several tabs.

8. The process of refinishing shingles, which comprises tearing away portions of the butts to alter the original shapes thereof and to produce irregularly shaped butt edges, coating the exposed surfaces and edges of the shingle with an impervious compound, and surfacing the coated areas with comminuted material.

In testimony whereof I have affixed my signature.

FREDERICK C. OVERBURY.